Remarks/Arguments

Claims 1-17 are pending, and are rejected.

Claims 8-10 are amended.

Claim Objections

Responsive to the objection, applicants have amended claims 8-19 to correct the informalities.

Claim Rejections - 35 U.S.C. § 103(a)

Responsive to the rejection, applicants respectfully submit that claims 1-17 are patentable over US 6,088,362 ("Turnbull") in view of US 5,128,928 ("Wilder"), further in view of US 6,408,008 ("Komarek"), further in view of US 6,240,077 ("Vuong"), as discussed below, and request reconsideration.

Independent claim 1 recites a process for automatically adjusting a time period of a time slot duration in a communication channel, comprising the steps of: determining whether data are being transmitted in a time slot in said communication channel; adjusting said time slot duration to a first time period if said data are not being transmitted in said time slot; and adjusting said time slot duration to a second time period if said data are being transmitted in said time slot.

By contrast, Turnbull discloses a KSU-less system 10 including three telephone lines 11, 12, and 13, which are connected to three, three-line telephone stations 14 that includes intercom with signaling. See col. 4, lines 14-17, and FIG. 1. The intercom with signaling capability is accomplished by using time division multiplexing (TDM), a custom high-speed frequency shift keying (FSK) modem (a modem 27 shown in FIGs. 2 and 3), and custom control firmware. See col. 5, lines 52-56. Initially, one of the stations 14 initiates an intercom session by going off-hook and seizing one of the lines 11, 12, and 13. See col. 6, lines 21-23. When the system 10 is idle, the stations 14 must determine which one will send out the system clock pulse, so that the

remaining slaves will be synchronized. See col. 7, lines 54-56. Any one of the stations 14 may attempt to synchronize to the system, and if it cannot, the station concludes that there are no stations transmitting. See col. 7, lines 56-58. Once the station has acquired the channel, it becomes the master and sends out data with the system clock. See col. 7, lines 62-64. At this point, data will be sent only during the time slot 79 (relied upon as the time slot), which is designated as the signaling channel. See FIG. 4 and col. 7, lines 64-65. Voice packets may occupy any one of the channels in time slots 76-78 in FIG. 4. See col. 8, lines 51-53. Remaining stations synchronize to the system clock by acquiring the first valid packet header and start bit and issuing a synchronization pulse to a circuit 96, as shown in FIG. 6, which adjusts the clock 100 to conform to the timing. See col. 8, lines 56-62.

From the discussion above, the time slots 76-79 are not even defined before the system clock has been sent out by a telephone station. Thus, the step of determining that no other is transmitting the system clock is not the step of determining whether data are being transmitted in a time slot, as alleged.

Furthermore, for the sake of argument, even if interpreting the step of determining that no other is transmitting the system clock as the step of determining whether data are being transmitted in a time slot, Turnbull still does not disclose or suggest the steps of adjusting the time slot duration to a first time period if the data are not being transmitted in the time slot, and adjusting the time slot duration to a second time period if the data are being transmitted in the time slot. The Office Action appears to rely on col. 8, lines 45-46 and col. 10, lines 60-64 as disclosing the step of adjusting the time slot duration to a first time period if the data are not being transmitted in the time slot. However, the cited portion does not disclose or suggest this step, as alleged.

Turnbull, at col. 8, lines 45-46, actually discloses that signaling data is transmitted in the time slot 79, which is the first time slot of the frame 75, and at col. 10, lines 60-64, that an out-of-band signal is transmitted during a first time slot of a TDM frame. Nowhere does Turnbull disclose or suggest that the time slot 79 is adjusted to a first time period. On the contrary, there is no need

for adjusting the duration of each time slot because the duration of each time slot is fixed. See col. 7, lines 45-53.

Applicants strongly disagree that Wilder discloses the step of adjusting the time slot duration to a second time period if the data are transmitted in the time slot, as alleged. Wilder actually discloses a non-blocking, real time telephone system architecture to control a multiple handset radio system. See col. 2, lines 16-18. The handsets communicate voice data and command data via radio transmissions to an assigned cluster 30, 40, 50, and 60, each having three radio transceivers to receive the transmitted data and input the data to the central control unit (CCU) 70. See FIG. 1, and col. 4, lines 12-16. CCU components that interact with voice data are connected via the time slice bus 360, which permits the components to interface and operate with one another on a real time basis to provide a non-blocking telephone system. See FIG. 4, and col. 7, lines 11-15. The time slice bus 360 consists of 480 slots per frame at 260 nanoseconds per time slot and thus the duration of each clock pulse is 125 microseconds. See col. 12, lines 36-38. The 480 slots can provide a system of 12 handsets in almost any configuration. See col. 12, lines 49-55. Thus, the duration of each time slot is fixed.

The Office Action relies on the description at col. 13, lines 18-21, as disclosing the step of adjusting the time slot duration to a second time period if the data are not being transmitted in the time slot. Applicants believe that the phrase "the second time period" stated in the Office Action should be "the first time period," to be consistent with the recitation in claim 1. In any case, the cited portion states that the system can be adjusted to provide additional slots. However, as described above, the duration of each slot is fixed. Thus, it does not matter how many more slots the system provides, Wilder still does not disclose or suggest the steps of adjusting the time slot duration to a first time period if the data are not being transmitted in a time slot, and adjusting the time slot duration to a second time period if the data are being transmitted in the time slot, as recited in claim 1.

The Office Action also states that Komarek discloses adjusting time period of a time slot because it discloses that a time slot scheme can be expanded by increasing the frame time period, as stated in col. 28, lines 55-57.

However, as discussed below, the frame time period is set statically, for example, before the operation of the system. Thus, the duration of a time slot is still fixed no matter how long the frame time period is set to and whether or not data are sent in a time slot.

Komarek discloses a telephone line communication system capable of operating on a single internal telephone line. See col. 18, lines 49-56. The system accepts from one to three lines from the telephone exchange with up to 14 extensions coupled to the single internal line. See col. 18, lines 56-59, and FIG. 1. The system includes a control unit 10 and multiple station phones 18 and 36 using a twisted pair 20. See FIG. 1. All signals between the control unit 10 (including MAN chips 22 and 24) and station phones 18 and 36 (including a MAN chip 26) are multiplexed over the single twisted pair wire 20. See col. 20, lines 20-23. A digital band is provided for control of the network as well as providing medium speed digital communication. See col. 20, lines 32-33. The digital band is provided at a carrier frequency of 12 kHz, which is broken down in to time slots. See col. 20, lines 34-35, and 50-52. An example of a time slot is shown in FIG. 5. See col. 26, lines 36-38. The mapping of time slots in a frame time period is shown in FIG. 6.

The timing signals required for the "fixed time slot" scheme are generally available on timing bus 56. See col. 26, lines 1-2, and col. 28, lines 53-55. In fact, as can be seen from FIGs. 5 and 6, each time slot takes up three clock cycles. Thus, the duration of each time slot is fixed. Although as pointed out in the Office Action, Komarek states, at col. 28, lines 55-56, that the programming available with the time slot scheme can be expanded by increasing the frame time period, increasing the frame time period only increases the number of time slots available. The duration of each time slot is still fixed after the expansion has been completed whether data are sent in a time slot. As such, Komarek also does not disclose or suggest the steps of adjusting the time slot duration to a first time period if the data are not being transmitted in the time slot, and adjusting the time slot duration to a second time period if the data are being transmitted in the time slot, as recited in claim 1.

The Office Action also states that Vuong, in col. 16, lines 13-20, and in col. 3, lines 5-8, discloses that a time slot can be adjusted to accommodate the

bandwidth requirement of a data type. However, the duration of a time slot is not adjusted based on a data type. Actually, what is adjusted is the number of time slots to be used in an application. For example, in col. 7, lines 26-29, Vuong states the following: "Hence, depending on the application of a certain subscriber unit or remote station, more or fewer number of timeslots are used to accommodate the application data bandwidth requirement." Thus, Vuong does not disclose or suggest the steps of adjusting the time slot duration to a first time period if the data are not being transmitted in the time slot, and adjusting the time slot duration to a second time period if the data are being transmitted in the time slot, as recited in claim 1.

In light of the fact that Turnbull, Wilder, Komarek, and Vuong, considered singly and in combination, do not disclose or suggest the steps of adjusting the time slot duration to a first time period if the data are not being transmitted in the time slot, and adjusting the time slot duration to a second time period if the data are being transmitted in the time slot, as recited in claim 1, applicants submit that claim 1, and dependent claims 2 and 3, are patentable over the four references.

Independent claim 4 also recites the steps of adjusting the time slot duration to a first time period if the data are not being transmitted in the time slot, and adjusting the time slot duration to a second time period if the data are being transmitted in the time slot, as recited in claim 1. Thus, applicants submit that claim 4, and dependent claims 5 and 6, are patentable over the four references.

Independent claim 7 recites the step of adjusting the time slot duration of the time slot in response to the content of the time slot. As discussed above, none of the four references discloses or suggests adjusting the duration of a time slot in response to the content of the time slot. As such, claim 7, and dependent claims 8-10, are patentable over the four references.

Independent claim 11 recites a similar feature recited in claim 7. Thus, claim 11, and dependent claims 12-14, are patentable over the four references.

Independent claim 15 recites similar features recited in both claims 1 and 7. Thus, claim 15, and dependent claims 16 and 17, are also patentable over the four references.

Having fully addressed the Examiner's rejections it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicant's attorney at (609) 734-6813, so that a mutually convenient date and time for a telephonic interview may be scheduled.

No fee is believed due. However, if a fee is due, please charge the fee to Deposit Account 07-0832.

Respectfully submitted,

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